

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER 92-144
SITE CLEANUP REQUIREMENTS

WICKLAND OIL MARTINEZ LIMITED PARTNERSHIP
TOSCO REFINING COMPANY
PHILLIPS PETROLEUM COMPANY
MARTINEZ TERMINAL
MARTINEZ, CONTRA COSTA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region, hereinafter called the Board, finds that:

Description of Dischargers

1. Wickland Oil Martinez Limited Partnership, (hereinafter called Wickland) presently owns and operates the Martinez Terminal Facility, a bulk petroleum storage, transfer, and blending facility (hereinafter called the Facility). The Facility is presently used to store refined petroleum hydrocarbons.
2. Martinez Terminals Limited, (hereinafter called MTL) owned and operated the Facility from November 18, 1987 to August 20, 1991. The MTL partnership terminated after transferring ownership to Wickland.
3. Landsea Terminal Incorporated, (hereinafter called LTI) owned and operated the Facility prior to November 18, 1987. LTI went into bankruptcy. The Facility was purchased by MTL at a foreclosure sale on November 18, 1987.
4. The Facility is located at 2801 Waterfront Road near the south shore of the Carquinez Strait in the City of Martinez.
5. Tosco Refining Company, (hereinafter called Tosco) currently owns a petroleum product pipeline system which follows an easement located through the Facility.
6. Phillips Petroleum Company, (hereinafter called Phillips) owned and operated the petroleum product pipeline system which follows the easement located through the Facility until April 1, 1976. As between Tosco and Phillips, the legal responsibilities for Phillips are still under litigation.
7. Wickland, Tosco, and Phillips are jointly hereinafter called Dischargers.
8. On November 12, 1975, the Regional Board filed suit in the Contra Costa County Superior Court against Phillips Petroleum Company for civil monetary liability due to certain petroleum spills at the Avon Refinery and Amorcio Terminal (No. 158634). On February 23, 1978, the complaint was amended to include Tosco Corporation and Lion Oil Company. On May 7, 1980, a Stipulated Settlement and Release was filed in the Superior Court whereby Phillips agreed to pay a monetary sum, Tosco agreed to implement minimum safety requirements for the petroleum pipeline, and the Regional Board agreed to release the defendants from certain claims and causes of action arising from the petroleum spills of July 19 and 20, 1975, September 18, 1975, October 8, 1975, and October 22, 1975.

Previous Investigations

6. MTL has conducted a study for soil and groundwater contamination. MTL's April 1990 Proposed Remediation Plan, and June 26, 1989 Data Summary noted the following:

- a. Soil contamination, many in excess of hazardous waste criteria, were reported as high as:

Copper (EPA Method 6010) 20,000 mg/kg (Area B);
Lead (EPA Method 7420) 11,000 mg/kg (Area B);
Arsenic (EPA Method 7060) 820 mg/kg (Area B);
Mercury (EPA Method 7470) 220 mg/kg (Area B);
Zinc (EPA Method 6010) 8,500 mg/kg (Area B);
Organic lead 17 mg/kg (Area B);
TPH as gasoline (EPA Method 8015 Modified) 38,000 mg/kg (Area B);
TPH as kerosine (EPA Method 8015 Modified) 8500 mg/kg (Area D);
TPH as diesel (EPA Method 8015 modified) 1800 mg/kg (Area B); and,
Benzene (EPA Method 8020) 13 mg/kg (Area D).

- b. Groundwater contamination as high as:

Benzene (EPA Method 602) 9100 ug/l (MW-3);
Toluene (EPA Method 602) 8000 ug/l (MW-3);
Ethylbenzene (EPA Method 602) 2000 ug/l (MW-3);
Total Xylenes (EPA Method 602) 11,000 ug/l (MW-3);
TPH as Gasoline (EPA Method 8015 modified) 0.7 mg/l;
TPH as Kerosine (EPA Method 8015 modified) 0.2 mg/l;
TPH as Diesel (EPA Method 8015 modified) 0.2 mg/l; and,
Oil and Grease (EPA Method 418.1) 20 mg/l.

7. The contaminated area around the Tosco pipeline is called Area E (Pipeline Area) where soil and groundwater are contaminated with petroleum hydrocarbons. The contaminated area extends on and past the easement for Tosco's petroleum pipeline. The cause of the contamination, and the cleanup liability are being disputed between Tosco and Wickland. Board Staff issued a letter to Tosco on September 14, 1987, and MTL on July 21, 1989. In both letters, Board Staff concluded that Tosco's pipeline was the cause of the contamination at Area E. LTI has conducted soil and groundwater analysis of the Pipeline Area. LTI's August 1987 Phase II Site Investigation report noted the following conditions for the Pipeline Area:

- a. Soil contamination as high as:

Benzene (EPA Method 624) 1.7 mg/kg;
Toluene (EPA Method 624) 3.5 mg/kg;
Ethylbenzene (EPA Method 624) 2.4 mg/kg;
Xylene (EPA Method 624) 14 mg/kg;
Oil and Grease (EPA Method 413.1) 9700 mg/kg;
TPH as diesel (EPA Method 8240) 5000 mg/kg; and,
Free phase petroleum hydrocarbons was observed in the soil.

b. Groundwater contamination:

Free phase petroleum hydrocarbons estimated at 6 inches thick was observed floating on groundwater at Boring B-9.

Cost Recovery

8. The Board's staff has notified Wickland that pursuant to Sections 25270.9 and 25270.11 of Chapter 6.67, Division 20 of California's Health and Safety Code, Wickland shall be liable to the extent of the reasonable costs actually incurred in overseeing or contracting for cleanup or abatement efforts. Wickland has agreed to reimburse the State according to Sections 25270.9 and 25270.11.
9. Pursuant to Section 13304 of the Water Code, the Dischargers are hereby notified that the Board is entitled to, and may seek reimbursement for, all reasonable costs actually incurred by the Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this Order. The Dischargers shall reimburse the Board upon receipt of a billing for those costs.

Basin Plan

10. The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Region (Basin Plan) on December 17, 1986 and amended it on August 19, 1987, July 18, 1989 and December 11, 1991. This Order implements the water quality objectives for the Basin Plan.

Beneficial Uses

11. The existing and potential beneficial uses of Suisun Bay and contiguous water bodies are:
 - a. Water contact recreation;
 - b. Non-contact water recreation;
 - c. Wildlife Habitat;
 - d. Preservation of Rare and Endangered Species;
 - e. Estuarine Habitat;
 - f. Fish migration and spawning;
 - g. Industrial service supply;
 - h. Navigation;
 - i. Commercial and Sport Fishing;
 - j. Shellfish Harvesting; and,
 - k. Municipal and Domestic Supply.
12. The existing and potential beneficial uses of the groundwater in the area are:
 - a. Municipal and Domestic Supply;
 - b. Industrial Process and Service Supply; and,
 - c. Agricultural Supply.

California Environmental Quality Act

13. This action is an Order to enforce the laws and regulations administered by the Board. This action is categorically exempt from the provisions of the California Environmental Quality Act pursuant to Section 15321, Title 14, California Code of Regulations.

Notice and Meeting

14. The Board has notified the Dischargers and interested agencies and persons of its intent under California Water Code Section 13304 to prescribe Site Cleanup Requirements for the discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
15. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, pursuant to Section 13304 of the California Water Code and Section 25270 of the California Health and Safety Code, that the Dischargers shall cleanup and abate the effects described in the above findings as follows:

A. Prohibitions

1. The discharge of wastes or hazardous materials in a manner which will degrade water quality or adversely affect the beneficial uses of the waters of the State is prohibited.
2. Further significant migration of pollutants through subsurface transport to waters of the State is prohibited.
3. Activities associated with subsurface investigation and cleanup which will cause significant adverse migration of pollutants are prohibited.
4. The discharge of pollutants onto land, into groundwaters or surface waters, except as allowed by an NPDES permit, is prohibited.

B. Specifications

1. The storage, handling, treatment or disposal of soil or groundwater containing pollutants shall not create a nuisance as defined in Sections 13050(l) and 13050(m) of the California Water Code.
2. The Dischargers shall perform free phase liquid petroleum hydrocarbons recovery activities, as needed, to remove free phase petroleum hydrocarbons from beneath the Facility. The discharger shall propose the methods to achieve this specification and the degree of cleanup but the proposal must be acceptable to the Executive Officer.
3. The Dischargers shall remediate soil and water contamination, which actually or threatens to degrade water quality or adversely affect the beneficial uses of the waters of the State.
4. Any Plan for remediation of the groundwater or soil shall call for extracting contaminants from a central area of any plume such that the contaminant does not migrate further from the source. The contaminant extraction shall be performed until cleanup levels are achieved. Cleanup levels and extraction rates will be proposed by the Dischargers but must be acceptable to the Executive Officer.

C. Provisions

The Dischargers shall comply with the Prohibitions and Specifications above according to the following time schedule:

(Wickland)

1. Wickland shall submit a technical report, acceptable to the Executive Officer, related to the recovery of free phase liquid petroleum hydrocarbons from all areas (except the Pipeline Area), contaminated with liquid petroleum hydrocarbons, including, but not necessarily limited, to the following:
 - a. The horizontal and vertical extent, estimated volume, rate and direction of movement of the free phase liquid petroleum hydrocarbons pool or pools beneath the Facility; and,
 - b. A remediation plan including a time schedule to remove all free phase liquid petroleum hydrocarbons beneath the Facility.

REPORT DUE: No later than April 15, 1993.

2. Wickland shall submit a technical report, acceptable to the Executive Officer, related to the remediation of contaminated soil and groundwater of all areas (except the Pipeline Area) including, but not necessarily limited, to the following:
 - a. The horizontal and vertical extent of contaminated soil and groundwater, rate and direction of movement of the contaminated groundwater beneath the Facility; and,
 - b. A remediation plan including a time schedule for all contaminated soil and groundwater beneath the Facility.

REPORT DUE: No later than July 15, 1993.

(Tosco and Phillips)

3. Tosco and Phillips shall submit a technical report, acceptable to the Executive Officer, related to the recovery of free phase liquid petroleum hydrocarbons at Area E (Pipeline Area), including, but not necessarily limited, to the following:
 - a. The horizontal and vertical extent, estimated volume, rate and direction of movement of the free phase liquid petroleum hydrocarbons pool or pools beneath Area E; and,
 - b. A remediation plan including a time schedule to remove all free phase liquid petroleum hydrocarbons beneath Area E.

REPORT DUE: No later than April 1, 1993.

4. Tosco and Phillips shall submit a technical report, acceptable to the Executive Officer, related to the remediation of contaminated soil and groundwater in Area E (Pipeline Area), including, but not necessarily limited, to the following:

- a. The horizontal and vertical extent of contaminated soil and groundwater, rate and direction of movement of the contaminated groundwater beneath Area E; and,
- b. A remediation plan including a time schedule for all contaminated soil and groundwater beneath Area E.

REPORT DUE: No later than July 1, 1993.

5. The Dischargers are required to reimburse the State for all reasonable costs of the State incurred in overseeing or contracting for cleanup or abatement efforts.
6. The Dischargers shall maintain a copy of this order at the facility so as to be available at all times to project personnel.
7. The Dischargers' technical reports, as appropriate, shall include a projection of the cost, effectiveness, benefits, and impact on public health, welfare, and environment of each alternative measure. The reports shall consider the guidance provided by the State Water Resources Control Board's Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California".
8. Technical reports, submitted by the Dischargers, in compliance with the Prohibitions, Specifications, and Provisions of this Order shall be submitted to the Board on the schedule specified herein. These reports shall consist of a letter report that includes the following:
 - a. A summary of work completed since submittal of the previous report and work projected to be completed by the time of the next report;
 - b. Identification of any obstacles which may threaten compliance with the schedule;
 - c. In the event of non-compliance with any Prohibition, Specification or Provision of this Order, written notification which clarifies the reasons for non-compliance and which proposes specific measures and a schedule to achieve compliance. This written notification shall identify work not completed that was projected for completion, and shall identify the impact of non-compliance on achieving compliance with the remaining requirements of this Order; and,
 - d. In the first self-monitoring report, an evaluation of the current groundwater monitoring system and a proposal for modifications as appropriate.
9. All submittals of hydrogeological plans, specifications, reports, and documents prepared in compliance with the provisions of this Order (except quarterly progress and self-monitoring reports), shall be signed by and stamped with the seal of a registered geologist, registered engineering geologist, or registered professional engineer.
10. All samples shall be analyzed by State certified laboratories or laboratories accepted by the Board using approved EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control records for Board review.

11. The Dischargers shall maintain in good working order, and operate as efficiently as possible, any facility or control system installed to achieve compliance with the requirements of this Order.
12. Copies of all correspondence, reports, and documents pertaining to compliance with the Prohibitions, Specifications, and Provisions of this Order, submitted by the Dischargers, shall also be provided to the following agencies:
 - a. City of Martinez;
 - b. Contra Costa County Health Department; and,
 - c. California Environmental Protection Agency, Department of Toxic Substances Control.
13. The Dischargers shall permit the Board or its authorized representative, in accordance with Section 13267 (c) of the California Water Code, the following:
 - a. Entry upon premises in which any pollution sources exist, or may potentially exist, or in which any required records are kept, which are relevant to this Order;
 - b. Access to copy all records required to be kept under the terms and conditions of this Order;
 - c. Inspection of any monitoring equipment or methodology implemented in response to this Order; and,
 - d. Sampling of any groundwater or soil which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the Dischargers.
14. The Dischargers shall file with this Board a report of any material change or proposed change in the character, location, or quantity of this waste discharge. For the purpose of these requirements, this includes any proposed change in the boundaries, contours, or ownership of the disposal areas.
15. The Board considers the property owner and site operator to have a continuing responsibility for correcting any problems within their reasonable control which arise in the future as a result of this waste discharge or water applied to this property during subsequent use of the land for other purposes.
16. These requirements do not authorize the commission of any act causing injury to the property of another or of the public, do not convey any property rights, do not remove liability under federal, state or local laws, and do not authorize the discharge of waste without the appropriate federal, state or local permits, authorizations, or determinations.
17. If any hazardous substance is discharged in or on any waters of the state, or discharged and deposited, or probably will be discharged in or on any waters of the state, the Dischargers shall

- a. Report such discharge to the following:
 - (1) This Regional Board at (510) 286-1255 on weekdays during office hours from 8 a.m. to 5 p.m.; and,
 - (2) The Office of Emergency Services at (800) 852-7550.
 - b. A written report shall be filed with the Regional Board within five working days and shall contain information relative to the following:
 - (1) The nature of waste or pollutant;
 - (2) The quantity involved and the duration of incident;
 - (3) The cause of spill;
 - (4) The estimated size of affected area;
 - (5) The corrective measures that have been taken or planned, and a schedule of these measures; and,
 - (6) The persons/agencies notified.
18. The Board will review this Order periodically and may revise the requirements when necessary.
19. If the Dischargers are delayed, interrupted or prevented from meeting one or more of the completion dates specified in this Order, the Dischargers shall promptly notify the Executive Officer and the Board shall consider revision to this Order.

I, Steven R. Ritchie, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region on November 18, 1992.



Steven R. Ritchie
Executive Officer

Attachments:
Figure 1, Site Location Map
Figure 2, Waste Area Map
Self Monitoring Program

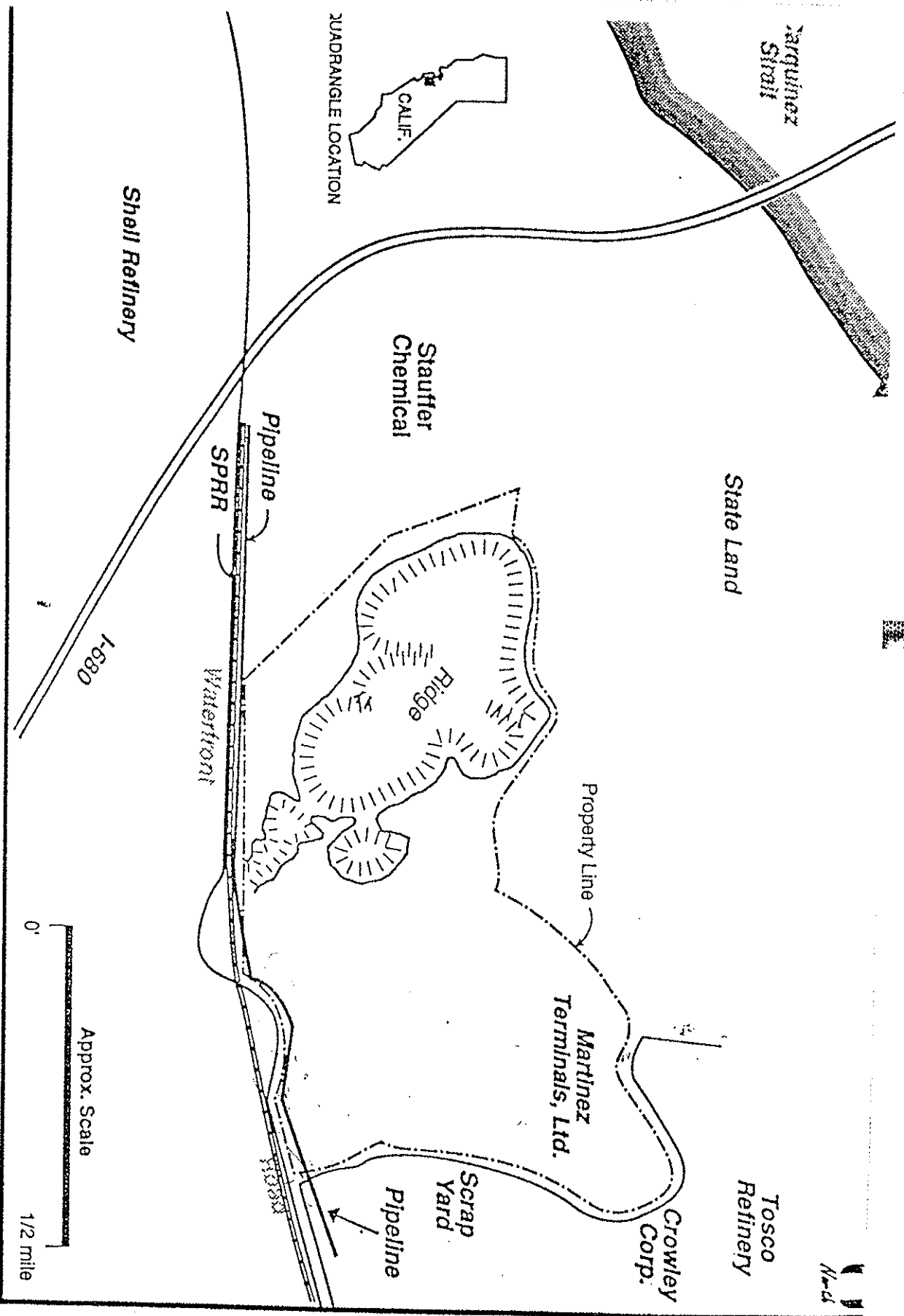
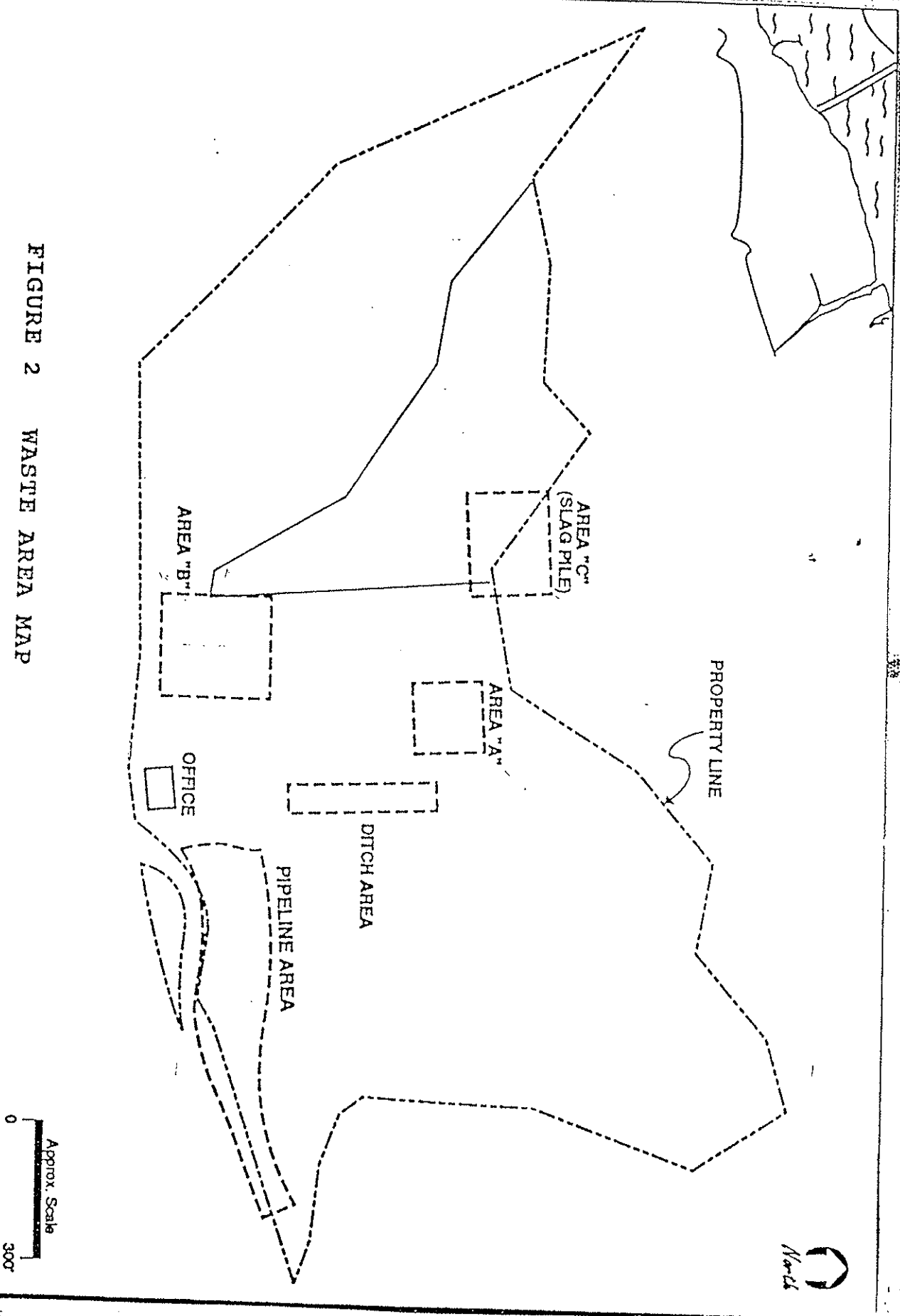


Figure 1
Site Location Map

FIGURE 2 WASTE AREA MAP



CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR

WICKLAND OIL MARTINEZ LIMITED PARTNERSHIP

MARTINEZ TERMINAL

MARTINEZ, CONTRA COSTA COUNTY

SITE CLEANUP REQUIREMENTS

ORDER NO. 92-144

CONSISTS OF

PART A

AND

PART B

PART A

A. General

1. The Self Monitoring Program shall be the responsibility of Wickland, Martinez Terminal (hereinafter called Discharger).
2. Reporting responsibilities of waste Dischargers are specified in Sections 13225(a), 13267(b), 13383, and 13387(b) of the California Water Code and this Regional Board's Resolution No.73-16.
3. The principal purposes of a self-monitoring program by a waste Discharger are the following:
 - a. To document compliance with Site Cleanup Requirements and prohibitions established by the Board;
 - b. To facilitate self-policing by the waste Discharger in the prevention and abatement of pollution arising from waste discharge;
 - c. To develop or assist in the development of standards of performance, toxicity standards and other standards; and,
 - d. To prepare water and wastewater quality inventories.

B. Sampling And Analytical Methods

1. Sample collection, storage, and analyses shall be performed according to the most recent version of Standard Methods for the Analysis of Wastewater, and Test Methods for Evaluating Solid Waste EPA Document SW-846, or other EPA approved methods and in accordance with an approved sampling and analysis plan.
2. Water and waste analysis (except total suspended solids) shall be performed by a laboratory approved for these analyses by the State Department of Health. The director of the laboratory or his duly authorized representative, whose name appears on the certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Regional Board.
3. All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

C. Definition Of Terms

1. A grab sample is a discrete sample collected at any time.
2. Duly authorized representative is a duly authorized representative may thus be either a named individual or any individual occupying a named position such as the following:
 - a. Authorization is made in writing by a principal executive officer; or,

- b. Authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as general partner in a partnership, sole proprietor in a sole proprietorship, the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company.

D. Schedule Of Sampling, Analysis, And Observations

- 1. The Discharger is required to perform sampling, analysis, and observations according to the schedule specified in Part B, and the requirements in Article 5 of Chapter 15 Title 23, California Code of Regulations.
- 2. A statistical analysis shall be performed and reported annually as described in the current revision of Appendix II of Chapter 15.

E. Records To Be Maintained By The Discharger

- 1. Written reports shall be maintained by the Discharger for groundwater monitoring and wastewater sampling, and shall be retained for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Board. Such records shall show the following for each sample:
 - a. Identity of sample and sample station number;
 - b. Date and time of sampling;
 - c. Method of composite sampling (See Section C-Definition of Terms);
 - d. Date and time that analyses are started and completed, and name of the personnel performing the analyses;
 - e. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used. A reference to a specific section of a reference required in Part A Section B is satisfactory;
 - f. Calculation of results;
 - g. Results of analyses, and detection limits for each analyses; and,
 - h. Chain of custody forms for each sample.

F. Reports To Be Filed With The Board

- 1. Groundwater monitoring results shall be filed monthly until the schedule allows quarterly samples, then reports shall be quarterly. Written self-monitoring reports shall be filed no later than 45 calendar days following the end of the report period. In addition an annual report shall be filed as indicated. The reports shall be comprised of the following:
 - a. Letter of Transmittal - A letter transmitting the essential points in each self-monitoring report should accompany each report. Such a letter shall include a discussion of any requirement violations found during the last report period, and actions taken or planned for correcting the violations, such as, operation and/or facilities modifications. If the Discharger has previously submitted a detailed time schedule for correcting requirement violations, a reference to the correspondence transmitting such schedule will be satisfactory. If no violations have occurred in the last report period this shall be stated in the letter of transmittal. Monitoring

reports and the letter transmitting the monitoring reports shall be signed by a principal executive officer at the level of vice president or his duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge originates. The letter shall contain a statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true, complete, and correct. The letter shall contain the following certification:

"I certify under penalty of law that this document and all attachments are prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who managed the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

- b. Each monitoring report shall include a compliance evaluation summary sheet. Until the Order's amended to specify a groundwater protection standard, the following shall apply and the compliance sheet shall contain:
 - i. The method and time of water level measurement, the type of pump used for purging, pump placement in the well, method of purging, pumping rate, equipment and methods used to monitor field pH, temperature, and conductivity during purging, calibration of the field equipment, results of the pH, temperature conductivity and turbidity testing, well recovery time, and method of disposing of the purge water; and,
 - ii. Type of pump used, pump placement for sampling, a detailed description of the sampling procedure; number and description of equipment, field and travel blanks; number and description of duplicate samples; type of sample containers and preservatives used, the date and time of sampling, the name and qualifications of the person actually taking the samples, and any other observations; the chain of custody record.
- c. A summary of the status of any remediation work performed during the reporting period. This shall be a brief and concise summary of the work initiated and completed as follows:
 - i. As interim corrective action measures; and,
 - ii. To define the extent and rate of migrations of waste constituents in the soil and groundwater at the site.
- d. The Discharger shall describe, in the quarterly report, the reasons for significant increases in a pollutant concentration at a well onsite. The description shall include the following:
 - i. The source of the increase;
 - ii. How the Discharger determined or will investigate the source of the

increase; and,

- iii. What source removal measures have been completed or will be proposed.
- e. A map or aerial photograph showing observation and monitoring station locations, and plume contours for each chemical in each aquifer shall be included as part of the quarterly Self-Monitoring Report.
- f. Laboratory statements of results of analyses specified in Part B must be included in each report. The director of the laboratory or his duly authorized representative, whose name appears on the laboratory certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Board. The following information shall be provided:
 - i. The methods of analyses and detection limits must be appropriate for the expected concentrations. Specific methods of analyses must be identified. If methods other than EPA approved methods or Standard Methods are used, the exact methodology must be submitted for review; and,
 - ii. In addition to the results of the analyses, laboratory quality control/quality assurance (QA/QC) information must be included in the monitoring report. The laboratory QA/QC information should include the method, equipment and analytical detection limits; the recovery rates; an explanation for any recovery rate that is less than 80%; the results of equipment and method blanks; the results of spiked and surrogate samples; the frequency of quality control analysis; and the name and qualifications of the person(s) performing the analyses.
- g. By January 31 of each year the Discharger shall submit an annual report to the Board covering the previous calendar year. This report shall contain:
 - i. Tabular and graphical summaries of the monitoring data obtained during the previous year;
 - ii. A comprehensive discussion of the compliance record, and the corrective actions taken or planned which may be needed to bring the discharger into full compliance with the Site Cleanup Requirements; and,
 - iii. A written summary of the groundwater analyses indicating any change in the quality of the groundwater.

Part B

A. Description Of Observation Stations And Schedule Of Observations

1. The observation stations shall consist of all existing groundwater monitoring wells, and any additional groundwater monitoring wells added during the soil and groundwater characterization or the evaluation of remediation work.
2. The schedule of well observations and grab sampling shall be conducted within the months of January, April, July and October.
3. The amount of groundwater extracted and oil extracted during the quarter and total during the term of this Order shall be report quarterly.
4. A map showing the potentiometric surface of the underlying groundwater shall be submitted quarterly.

B. Observations and Test Procedures

1. The groundwater well observations shall consist of the following:
 - a. Water elevation reported to the nearest 0.01 foot for both depth to water from the ground surface and the elevation of the groundwater level as well as the elevation of the well screen;
 - b. Groundwater temperature measured at the time of sampling and reported in degrees Fahrenheit;
 - c. Groundwater conductivity measured at the time of sampling as per Standard Methods 205 using potentiometric methodology;
 - d. Groundwater pH measured at the time of sampling as per Standard Methods 423 using potentiometric methodology;
 - e. Groundwater turbidity measured at the time of sampling; and,
 - f. The thickness of free phase petroleum hydrocarbons measured using EPA approved methods.
2. The test procedures for the groundwater samples and soil samples shall be as described herein. This section shall not apply to groundwater samples taken from wells with more than 0.1 inch thickness of free phase petroleum hydrocarbons.
 - a. Volatile aromatic compound analysis, including benzene, ethylbenzene, toluene, and xylene using EPA Method 5030/8020;
 - b. Total Petroleum hydrocarbons and Fuel Hydrocarbons using the EPA Method 5030/8015(Modified); and,

- c. Total Oil and Grease using Standard Methods 418.1 infrared analysis.
3. Quarterly reports to be filed pursuant to Part A of this Self-Monitoring Program shall include a map showing the limit of groundwater contamination, direction of movement and concentration of contamination.

I, Steven R. Ritchie, Executive Officer, hereby certify that the foregoing Self-Monitoring Program is as follows:

1. Developed in accordance with the procedures set forth in this Board's Resolution No. 73-16;
2. Effective on the date shown below; and,
3. May be reviewed or modified at any time subsequent to the effective date, upon written notice from the Executive Officer, or request from the Discharger.



Steven R. Ritchie
Executive Officer

November 18, 1992
Date Ordered